



PHOTO CREDIT: Daniel Schwen/[Wikimedia commons](#)

PROPOSED FINAL REPORT

# Hybrid Electric Ferries: Design-Build Contracting and Procurement

## Legislative Auditor's Conclusion:

The Legislature should consider revising state law to allow alternatives that increase ferry acquisition speed and the value to the state.

WSDOT Ferries Division should improve its cost estimation, payment, and other practices.

# WSF is electrifying its fleet

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**2019-20**

Issued plans to increase and electrify fleet. First planned procurement: Olympic class.

**2023**

New RFP for hybrid electric Olympic class.

**2019-2022**

Attempted to extend existing contract with Vigor, adding 5 hybrid electric Olympic class vessels. Negotiations failed.

# JLARC to evaluate design-build contracting for hybrid electric ferries

- Compare WSF's policies and practices to industry best practices.
- Assess opportunities to decrease vessel construction costs & ensure operational efficiencies.

2022 Supplemental Transportation Budget

*Preliminary report issued in February 2023.*

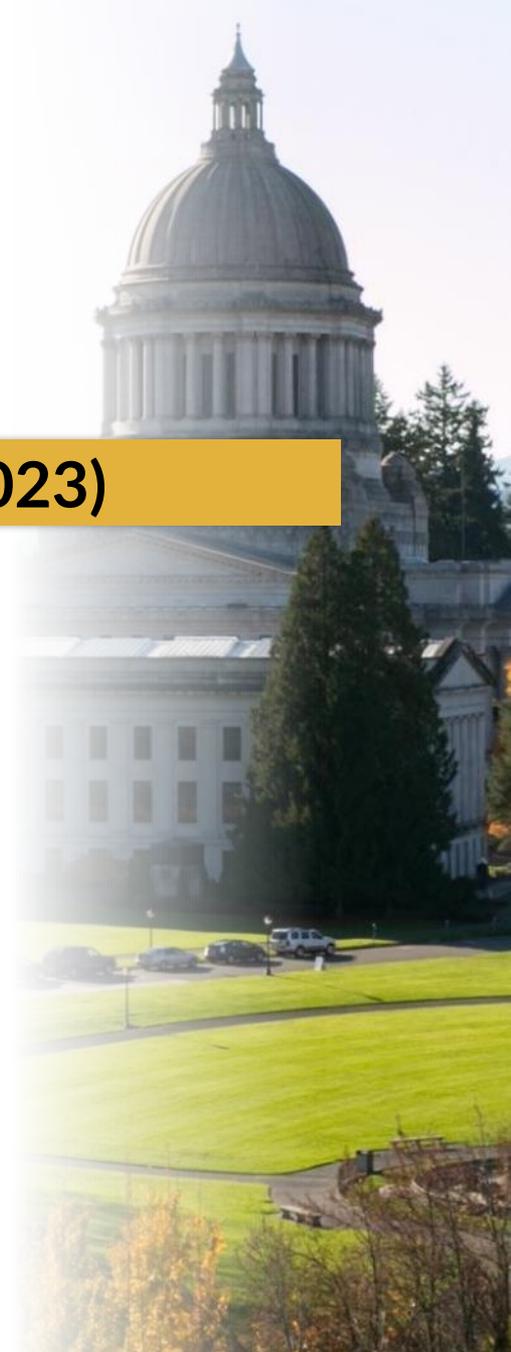
# Legislative Auditor made two recommendations to the Legislature

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HB 1846 (2023)

Consider amending state law to allow WSF to:

1. Use a best value selection process for ferry acquisition.
2. Offer a single nationwide RFP that increases competition, offers in-state preference, and protects against the risk of a longer procurement process.



# Legislative Auditor made five recommendations to WSF

**WSF concurs**

## Five recommendations to WSF

1. Cost estimating
2. Cost risk
3. Life cycle costs
4. Payment strategy
5. Documentation



# Cost estimates should change and become more refined over time

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WSF uses standard cost estimating methods.

## Top-down estimates

use known data from similar vessels to predict costs of new vessel.

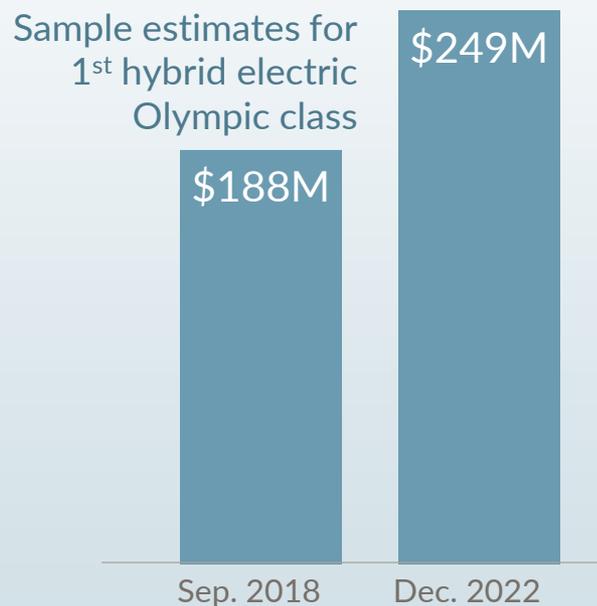
PROJECT DESIGN PROGRESS



## Bottom-up estimates

add individual line items to estimate cost of new vessel.

# WSF's estimates do not convey key assumptions and uncertainty



**What caused the change?**

*(e.g., inflation, design changes, or new information)*

**What is included in the estimate?**

*(e.g., design, materials for future vessels)*

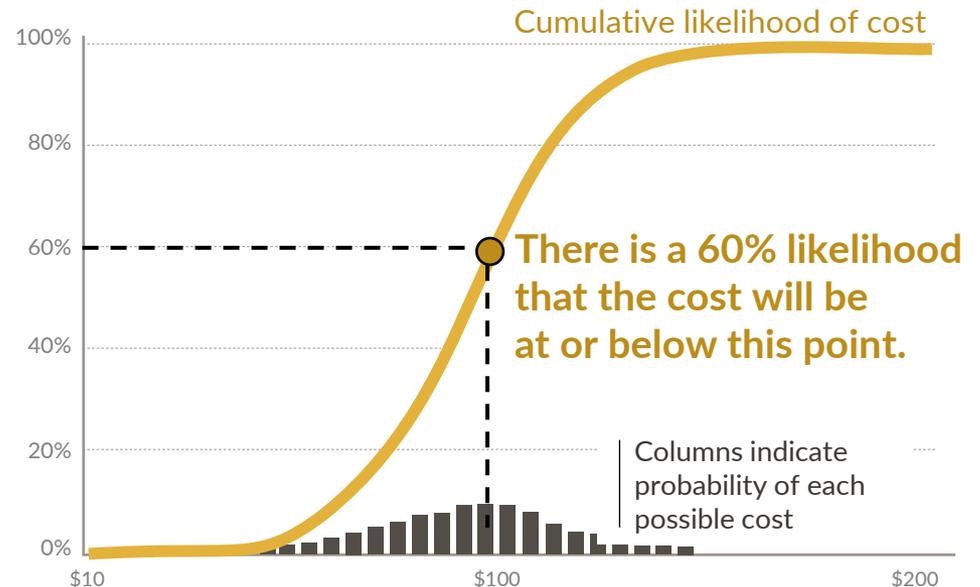
**What data and methods were used?**

**What are outstanding risks & uncertainties?**

# A probabilistic approach would help convey uncertainty

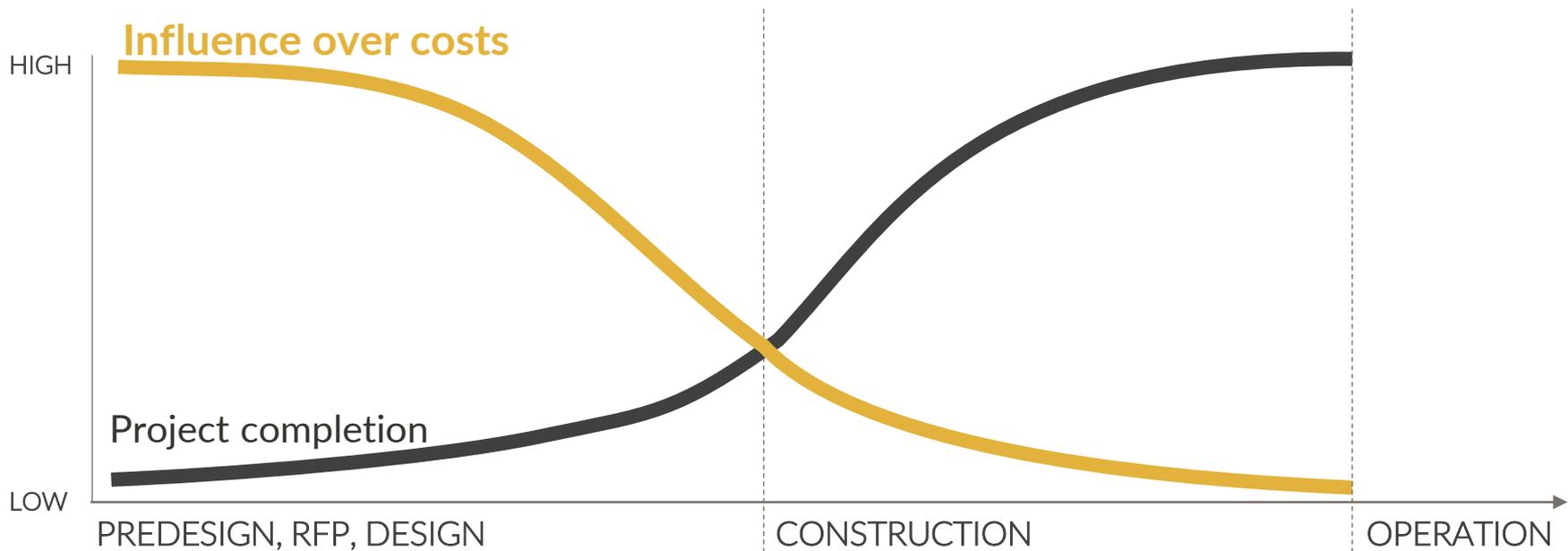
Consider the cumulative likelihood to set the budget amount.

WSDOT does this with the Cost Estimate Validation Process (CEVP).



# As a project is completed, control over life cycle costs declines

~70% of a vessel's life cycle costs are experienced after construction.



# WSF predesign studies could better assess life cycle costs

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**Completed studies have informed the vessel's technical requirements.**

- ✓ Vessel wake.
- ✓ Battery bank design.
- ✓ Conversion to plug-in hybrid electric propulsion.

**Predesign topic selection:**

- ✓ Reflects stakeholder feedback and industry trends.
- ✗ May exclude topics that affect life cycle cost.

**Predesign studies address life cycle costs related to:**

- ✓ Fuel efficiency.
- ✓ Preservation.
- ✗ Staffing.

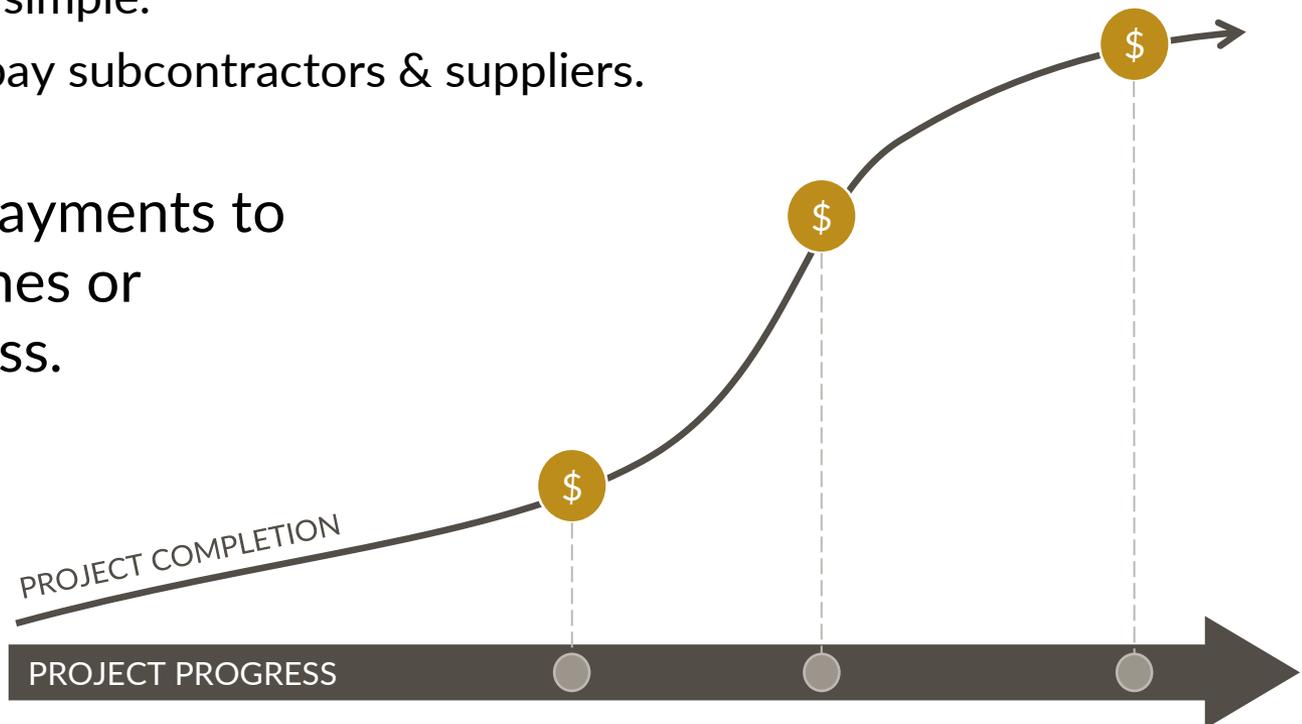
# WSF has paid shipbuilders each month based on estimated progress

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WSF reports its approach:

- is administratively simple.
- helps shipbuilder pay subcontractors & suppliers.

Best practice: tie payments to significant milestones or measurable progress.



# WSF's Vessel Engineering Manual does not reflect current law

Legislature changed the ferry procurement laws in 2015.

In the absence of documented policies, WSF relies heavily on staff expertise and consultants.

HB 1846 applies to the current procurement of five hybrid electric Olympic class and does not change existing WSF-specific design-build laws.

# Legislative Auditor Recommendations to WSF

**WSF Concur**

**OFM had no response**

- 1) Ensure that cost estimates shared publicly are clear and well documented.
- 2) Apply probabilistic approaches to cost estimates.
- 3) Ensure predesign studies evaluate long-term costs and address significant potential life cycle cost drivers.
- 4) Tie shipbuilder payments to significant milestones or project progress.
- 5) Update ferry acquisition policies & procedures to reflect current laws and best practices.

**View the full report:**  
[www.leg.wa.gov/jlarc](http://www.leg.wa.gov/jlarc)



**Video Summary**



**One Page Overview**



**PDF Version**





# Contact Us

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